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AGRICULTURAL PRODUCTION AND FOOD CONSUMPTION IN IRAN

FOOD IN GERMANY

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AGRICULTURAL PRODUCTION AND FOOD CONSUMPTION IN IRAN. . . .

By Afif I. Tannous*

Once more, as the world goes through the present epochal crisis, Iran assumes its historical position as one of the strategic spots on the globe. Iranians, Russians, British, and Americans have been working hard at the problems of increasing its agricultural production and maintaining an adequate food supply for the civilian population and for the armed forces. A satisfactory solution of these problems is inevitably tied up with the analysis of the situation into several pertinent factors, some of which are peculiar to the country.

Obviously one of these is the physiography of the region. Various features of the population, including religious composition, constitute another. Furthermore, Iran is predominantly a rural country, whose agricultural production, the main source of its living, is maintained by the tribe and by the village community. Consequently an understanding of the historical development and present socioeconomic organization of these two units is essential for the proper evaluation of the country's economic status and possibilities. Finally, one must remember that such an ancient country as Iran has developed through long centuries its own crop-production methods and techniques. These cannot be condemned and changed overnight, regardless of their limiting character.

GEOGRAPHIC FEATURES

The strategic position occupied by Iran, the land of the ancient Medes and Persians, is readily revealed by a glance at its boundaries, which place it in the proximity of India, central Asia, the Soviet Union, and the countries of western Asia. Precisely, the country is bounded by the Soviet Union and the Caspian Sea on the north; Turkestan, Afghanistan, and Baluchistan on the east; the Gulf of Oman and the Persian Gulf on the south; and Iraq and Turkey on the west. Stretching from northwest to southeast for a distance of 1,400 miles[1] and from north to south for a distance of 875 miles, Iran lies between 25° and 40° north latitude and 44° and 63° east longitude.

The total area of the country amounts to 628,000 square miles or a little more than one-fifth that of the United States. A rough idea of the manner in which this area is utilized may be conveyed by the following approximate figures: 10 to 15 percent, actually under cultivation; 20 to 30 percent potentially cultivable, provided irrigation facilities are increased; 15 percent, grazing land; 10 to 15 percent, forests; 30 to 35 percent, desert and other waste land.

* Office of Foreign Agricultural Relations.

[1] Converted from kilometers; 1 kilometer equals .62137 mile.

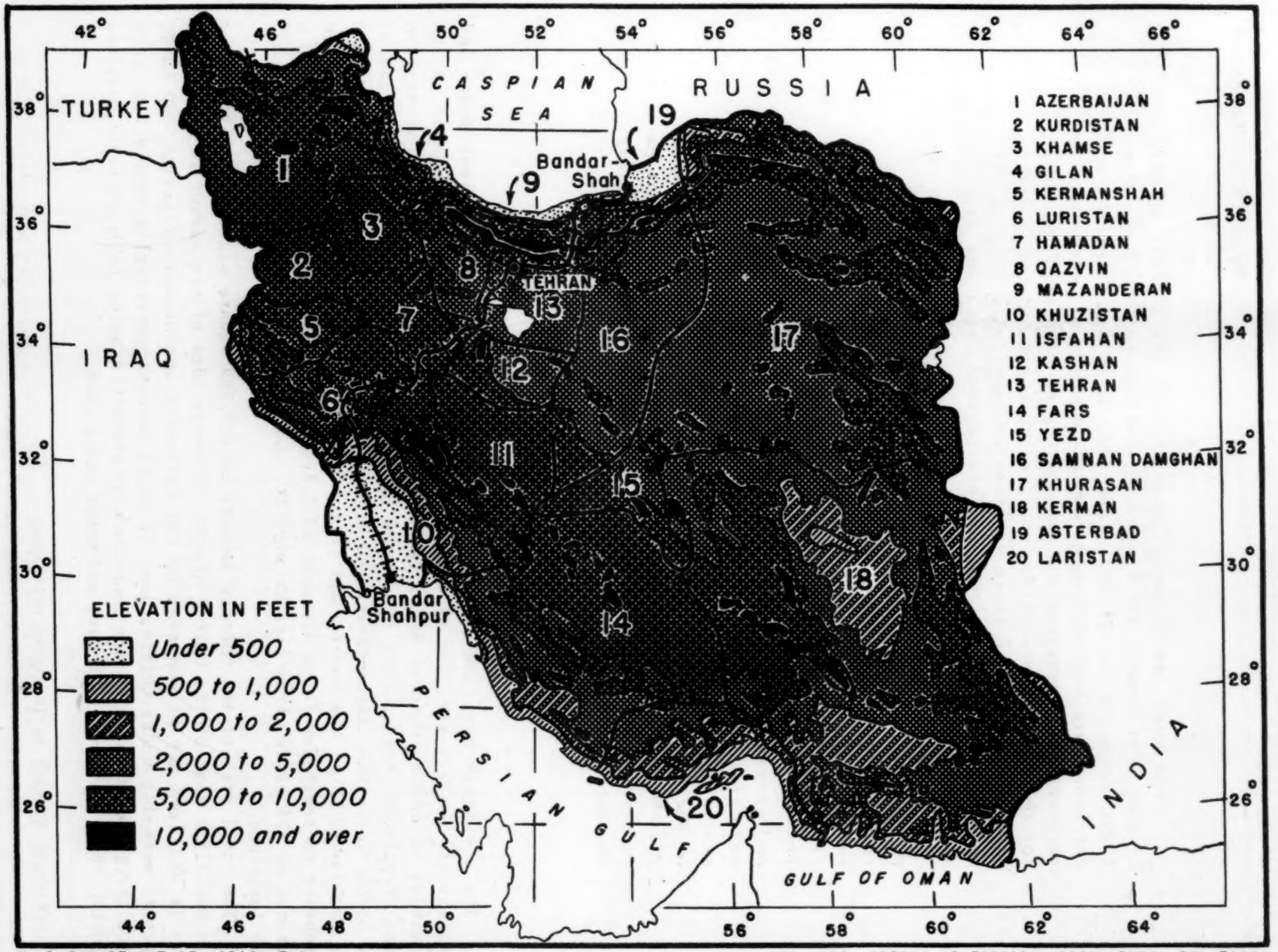

FIGURE 1.-Map of Iran showing provinces and topography.

A striking variety of topographical features is encountered in this area. The Caspian littoral in the north lies partly below sea level, whereas a few miles inland rises the mighty Elburz Range, reaching a height of 18,600 feet,[2] at Damavand. This range extends into the northwestern corner of the country, where it joins the Zagros Mountains. These in their turn run along the western and southern boundaries of the central plateau, with peaks reaching 8,000 and 10,000 feet in elevation. Bounded by these high mountains on three sides, north, west, and south, lies the famous central plateau of Iran, which is in fact a continuation of the central Asian tableland to the east. Its average altitude is about 4,000 feet and at some places it is traversed by minor mountain chains, which run in the general direction of the main ranges. A great portion of the plateau is a desert region (Dasht-i-Kavir and Dasht-i-Lut) extending from northwest to southeast, about 200 miles wide and 800 miles long. Two other topographical sections must be mentioned; the Karun River Valley, beyond the western mountain range, running along the Iraqi frontier toward the Persian Gulf, and the southern coastal plain between the Persian Gulf and the Zagros Mountains. In general, a bird's-eye view of Iran gives the impression of a huge central plateau, broken at places by minor mountain ranges, and surrounded on three sides by a formidable mountain system, which slopes down into a fringe of narrow plains on the north, southwest, and south.

Regarding water bodies that exist within the country, two main features should be observed: They are scanty in relation to the size of the land, and they are in many places too salty to be of use for irrigation purposes. Most of the important rivers and streams flow from the northern mountain ranges across the littoral, into the Caspian. The main ones among these, from west to east, are Aras (Araxes), Gizel Uzun (Safid Rud), Gurgan, and Atrak. Several small rivers and streams flow into the central plateau, where they are lost finally in salt marshes. Among the rivers of the southern littoral (Mand, Naband, Shur, Sarhaz, and others) the Karun River system is the only one of importance. It flows south through the fertile Karun Valley along the southwestern frontier and empties at the northern tip of the Persian Gulf. A few salt lakes exist in the country; the three largest are Urmia in the extreme northwest corner, Helmand on the Afghan frontier in the east, and Niriz in the south. The two large water bodies that form a coast line with Iranian territory are the Caspian Sea in the north and the Arabian Sea, forming the Gulf of Oman and the Persian Gulf in the south.

From the above description one can readily see that there are five main water basins; namely, those of Lake Urmia, the Caspian littoral, the Persian Gulf and Gulf of Oman littoral, Lake Helmand, and the central plateau.

With respect to climate, Iran may be described in general as arid or semiarid, with a wide range of temperature between the hot summer and the cold winter. Local variations, however, are marked and should be pointed out. In the Caspian littoral the temperature is relatively mild (with rare extremes of 32° and 90° F.) but tends to be oppressive in summer because of high humidity. Rainfall here is abundant, in fact more abundant than in any other part of the country. It is as high as 60 inches[3] per annum in the western corner of the littoral and gradually decreases toward the east down to about 20 inches. Most of the rain occurs in the fall and winter months, but there are also spring and summer showers. A northeasterly wind, blowing over the Caspian, is responsible for precipitation.

[2] Converted from meters; 1 meter equals about 3.3 feet.

[3] Converted from millimeters; 1 millimeter equals 0.0394 inch.

In the southern extremity of the country, the climate of the Persian Gulf littoral is characterized by mild winters but very hot and oppresive summers which have a high humidity of 80 to 90 percent. The average maximum temperature in summer varies from 104° to 122° F.[4] and the average minimum temperature in winter varies from 32° to 46° F. Rainfall is scanty, averaging from 4 to 11 inches a year, all of which precipitates during the winter season.

The climate of the extensive mountain system may be described in general as cold and snowy in winter and warm and dry, with low humidity, in summer.

In the central plateau, the continental type of climate prevails. Temperature varies considerably from day to night and from summer to winter. The average maximum temperature ranges between 97° and 109° F. in summer and the average minimum temperature between 25° and -4° F. in winter. The effect of the summer heat, however, is minimized by the low humidity of the air. All over the plateau area, rainfall is scanty, averaging 10 inches in the northwest and 2 inches in the southeast.

COMPOSITION OF POPULATION

Estimates of the Iranian population vary a great deal, since no accurate and exhaustive census has been taken. There seems to be general agreement, however, that a population of 15,000,000 is the best estimate. This gives a density of about 24 people per square mile for the total area, 239 for the cultivated area, and 95 for the cultivated and grazing areas combined. The population of this territory in ancient times has been estimated at about 50,000,000 people.

With respect to the religious composition of the population, it is well known that the great majority, about 13,000,000, are Muslims of the Shi'a sect. About 1,000,000 are Muslims of the Sunni sect, and about 1,000,000 are Jews, Baha'is, Christians, and others. Racially, as is the case with almost all other nations of today, there is a high degree of admixture. The first racial group of which there is authentic knowledge was that of the ancient Medes, who migrated from Turkestan, occupied northern Iran, and spread west into Kurdistan. Later came the Persians, who settled in the south. Subsequently, these two groups were united into one nation, which flourished for several centuries. Then came, one after the other, invasions by the Macedonians, the Mongols, the Arabs, and the Turks, each of whom contributed to the resultant racial mixture. At present the following elements may be detected: Iranians, Turks, Arabs, Baluchs, and a few others. Irani is the official and predominant language, but Arabic, Turkish, and several local dialects are used.

Finally, a striking population feature is that the great majority of the people, about 13,000,000, are rural (including about 3,000,000 partly settled tribes) and are directly dependent upon agriculture for a living. The urban population is estimated to be about 2,000,000.

THE RURAL COMMUNITY

As is the case in the other Middle East countries, the rural community of Iran has consisted since time immemorial of two main divisions, the nomadic tribe and the settled village. Without going into the controversial question of which preceded the other in prehistoric times, it can be authentically shown that, since the dawn of history, the two have existed side by side in that part of the world. The relationship between them has been organic, involving several degrees of transition from

[4] 40° to 50° C.

nomadic herding to settled agriculture. Biologically, tribal life has been the mainspring of the nation's population vitality and growth. Economically, it has supplemented to a large extent the agricultural activity of the settled village.

As mentioned above, there are at present in Iran about 3,000,000 tribal people. Some of these are nomads who follow the seasonal pastures with their herds (mostly sheep) and live mainly upon their products. Others are in various stages of settlement, combining herding with cultivation of the soil. A few years before the advent of the present war, the Iranian Government, as part of its far-reaching plan of national reconstruction, had embarked upon a project of settlement for the tribes. In view of the disruptive influences of the war situation, the extent to which the experiment has been successful cannot be ascertained. The main economic problem involved in such a project is how to effect settlement and at the same time retain the productive capacity of the tribe. The herds of these nomadic groups have been for ages the main source of livestock products for national consumption and for exportation in the form of meat, skins, wool, milk, *ghee* (clarified butter), and cheese.

A still more important unit in the national life of Iran is the village community. Here live the actual cultivators of the soil, whether they own it or not, in a country that is predominantly agricultural. In the late thirties estimates indicated that there were about 50,000 villages and hamlets, representing about 10,000,000 people. Unlike the North American pattern, no isolated farmsteads exist between these villages. Farmers and peasants, together with their animals, live in these nucleated settlements from which they go out daily to work in their surrounding fields. The two main social bonds or pillars of village life are the family and the church. People face various life situations as members of a joint family or a kinship group. At the same time, all the village population normally belongs to one sect, predominantly the Shi'a branch of Islam. Economically, the village has one main function, that of agricultural production, to which other activities are subsidiary.

Similar to other villages of the Middle East, the Iranian rural community suffers from a low standard of living. This is clearly manifested in poor housing conditions, inadequate diet, high infant mortality, and a low rate of literacy. Again it must be mentioned that the Iranian Government has become conscious of this national problem in recent years and has begun the application of serious effort toward its solution.

SYSTEMS OF LAND TENURE

Probably the most outstanding problem of the rural economy in Iran results from the prevailing systems of land tenure. The roots of the present situation reach far back into the remote past. Previous to the formation of a centralized power in Iran, the assumption is that the land was owned and cultivated in common by migratory, half-settled, or permanently settled kinship groups. Under the Achaemenian dynasty, control of the land was put in the hands of certain local chiefs, called Satraps, who gradually developed into hereditary proprietors. Each Satrap had his own vassals who had some control over the land. That was the beginning of the feudal system. Under the Macedonian conquest the local feudal lords lost their power for the time being, to regain their position later under the native Sassanid dynasty, but mostly as court nobility. The land then became more of a state domain cultivated by peasants. Land taxation was imposed and a regular revenue derived. During this period the class of *Dehkans* arose, who were the agents of the Government among the peasants. Final destruction of the ancient form of feudalism was accomplished by the more recent

Qajar dynasty, the agents of whose centralized regime exploited, to their own and the King's benefit, the land and the people.

Most of the present system of land tenure dates back to the days of the Arab conquerors, who took away the country from the native Sassanids in the second half of the seventh century A. D. The Iranians adopted from the Arabs the religion of Islam, the mainspring of their cultural organization, including of course its rules regarding land tenure. As the Arab conquest advanced into Iran, all lands that belonged to the King and his family and all unclaimed lands were transferred into state domain and added to what had already existed as such. Land that was owned by individuals who chose to remain non-Muslims, was not molested, with the exception of the imposition of a land tax called *Kharaj* (tribute). On the other hand, land owned by Muslims was called *'Ushriyah* (tithe-paying). Later on, this distinction fell into disuse, especially as practically all the Iranian people became Muslims.

The old Iranian feudal system was continued by the Arabs, with some modification, under the new concept *Ikta'* (from the Arabic root verb *Akta'a*, meaning to grant someone the use of a certain land). Such grants made by the ruler from the state domain involved the land, or its revenue, or the right to collect taxes from the cultivators of a certain territory. Such a right eventually became hereditary, transforming the grantee into an actual owner. The grantees were mostly local chiefs, court attachés, army leaders, or others who had rendered the ruler some service or were favorites of his.

After the fall of the Arabs in Iran, local dynasties carried the Ikta' system to the extreme. The peasants were exploited and reduced to the level of serfdom. This oppression continued with greater ruthlessness under the Mongol invasion that followed. Some respite was gained and reforms were attempted toward the beginning of the sixteenth century, after Ismail I had founded the prosperous rule of the Safavi dynasty. As mentioned above, during the more recent rule of the Qajar dynasty exploitation of the cultivators was carried to the extreme by the rulers, their agents, and absentee landlords. Following the national revolution of 1907, some reforms were attempted. More serious efforts have been exerted in this direction by the present government system that was established by the ex-Shah, Riza Pahlavi, in the early twenties.

The prevailing land categories in Iran are much the same as those of the neighboring Arab countries. The following is a brief description of the three main categories and the conditions attendant upon each.[5]

State Domain

This land is owned directly by the State. Its sources of origin were conquests; confiscation of property previously held by kings, royal dynasties, and others; any unclaimed land; donations; and purchases. It is cultivated by peasants, with the State playing the role of the landlord. The Government's share of the produce is collected either directly by agents, or indirectly by subletting to an individual against the payment of a fixed sum. The detrimental condition resulting from the latter practice is obvious, for the contractor has no interest in the peasants or the land beyond collecting as much revenue and making as much profit as possible. After the revolution of 1907, the old system of Ikta', as described above, was stopped. At present, any transfer of state land or its revenue to others must be enacted by the

[5] For a detailed discussion of this subject, see TANNOUS, AFIF I. LAND TENURE IN THE MIDDLE EAST. Foreign Agr. 7: 171-177, illus. 1943.

Majlis (national assembly). The extent of state domain is not exactly known. Rough estimates indicate that it amounts to about 10 percent of arable land.

Waqf[6]

This refers to land that has been dedicated in perpetuity for religious or charitable purposes. The institution was introduced as an aspect of the religion of Islam at the time of the Arab conquest. At present *Waqf* property amounts to about 10 percent of the cultivated land. Its administration is largely in the hands of the clergy, but the State has reserved for itself the right of control and supervision. Also its approval is necessary for the creation of new *Waqf*.

Private Property

About 80 percent of the cultivated land is privately owned by individuals who exercise over it full control and rights of disposal. Such ownership, however, is concentrated in the hands of the few who are mostly absentee chiefs. The cultivator-owner class in Iran is still a small minority, the land being mostly cultivated by sharecropping peasants. They live in villages which belong, together with the land, to the various lords. Usually one of these is the owner of several villages.

Cultivation of the land is sometimes undertaken directly by the owner, who lives in the village and actually does the work or supervises the peasants. In most cases, however, the absentee lord leases out his land in one form or another. Under the *Muzara'a* system (meaning sharecropping) the land is leased out to the cultivator for a certain period against paying the owner a definite share of the produce. The owner retains full control over the peasants and their activities. A variation of this form is one by which the cultivator pays a fixed amount of the produce. A third form of exploitation differs drastically from the other two in that the land is leased to a renter who is not himself a cultivator. He pays the absentee lord a fixed sum for the right to collect the shares due from the peasants. One can readily see how this practice lends itself to abuse of the peasant and the land.

There is no general rule regarding the partition of agricultural produce. The share received by each of the parties concerned differs according to local usage and according to the weight attached to a variety of factors involved, such as location and fertility of the land, method of cultivation, local public security, availability of irrigation water, seed and draft animals to be supplied, manpower used, and kind of crop produced. Consequently, the lord's share varies from a minimum of 20 percent to a maximum of 75 percent. The net amount received by the peasant, however, is actually less than his gross share. This is due to additional claims made by the lord's agents, the water and field guards, the priest, and others.

AGRICULTURAL PRODUCTION

Irrigation

A look at the figures of scanty precipitation over the greater portion of the territory, as presented in the first section of this article, is sufficient to impress one with the fact that the development of Iranian agriculture is highly conditioned by the availability of water for irrigation. Another factor contributing to the stringency of the situation is the saltiness of a large number of the running streams.

[6] From the Arabic root verb *Waqafa*, meaning to stop or to hold steady and unchanged.

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In their attempt to overcome the problem of insufficient water, the Iranians succeeded in the development of an extensive and fairly adequate system of irrigation, upon which they have relied for centuries in carrying on agricultural production and securing a livelihood. In the first place, they utilized surface streams as much as possible. These are few in number, however, and of limited flow; the only river capable of an extensive water supply is the Karun which flows down the Province of Khuzistan in the west.

They also resorted to the sinking of wells. These are normally from 30 to 40 feet deep, and the water is drawn from them by three main techniques. The first of these is the use of the leather bucket, which is attached to a long rope and pulled up over a pulley by animals. In the second, the *noria* or *sagieh*, a type of waterwheel is employed, which is turned by animals. This method is used for shallower wells. The third is the *shadoof* or counterpoise, a simple device used, not only in Iran but in other parts of the Middle East as well, to draw water from a depth of a few feet. It is a lever and fulcrum combination consisting of a vertical scaffolding on which is balanced horizontally a long post, with an appropriate weight attached to one end and a bucket hanging from the other. It is worked by a man, who pulls at the bucket until it dips into the water, and who is helped in raising it when full by the weight at the other end.

The system most extensively used in procuring irrigation water is, however, that of the *qanat*, or the underground channel. This is constructed as follows: A hole is dug at the foot of a hill to a reasonable depth, or until the water level is reached. Then a slightly inclined underground channel is opened in the direction of the lower land to be irrigated. At regular intervals shafts are dug into the channel, which is continued for a short or a long distance until the water appears on the surface. From then on, the flow of the water continues as long as the *qanats* are kept in good condition. Estimates indicate that not less than 75 percent of Iranian irrigation is maintained by this system.

In recent years the Government has given serious attention to the matter of irrigation development within the general plan of national reconstruction. A Department of Irrigation and Dam Construction has been set up within the Ministry of Agriculture. The work undertaken so far has been limited mostly to the making of preliminary or final surveys and the drawing up of plans for the construction of dams and barrages in various parts of the country. The major project contemplated is that of the Karun River, which may be made to irrigate some 7,400,000 additional acres.[7]

Crop-Production Methods

Ancient and simple practices and implements are still predominant in Iranian agriculture, even to a greater extent than in other neighboring countries. Many of these techniques are antiquated and wasteful, yet farmers cling tenaciously to them, because they are unacquainted with more modern methods or because of deep-rooted custom built up and transmitted through the centuries. Furthermore, every agricultural activity in the highly integrated and stabilized Iranian culture is an organic part of the total way of life, and any change in it would result in far-reaching repercussions. Consequently, the wooden or nail plow of ancient Persia is still there, pulled by oxen, cows, donkeys, horses, or camels. The small sickle, the wooden fork with five prongs, the spade, and the pick are typical implements. In many sections of the

[7] Converted from hectares; 1 hectare equals 2.471 acres.

extensive plateau, where wood is scarce, manure is dried into cakes and used as fuel. Wheat and barley, the two staple crops, are cut down by hand with the sickle mentioned before. Threshing is done by means of a board pulled by animals, or by having animals tread on the grain. It must be emphasized, however, that some of these practices are excellently adapted to the local situation.

In 1940 the Iranian Government launched a 5-year plan to increase the production of various crops, including wheat and barley. The annual production of these was to be increased by about 500,000 short tons.[8] Also before the advent of the war an extensive project of elevator construction was begun. The goal was to have enough elevators where wheat and rice could be stored to ensure a safeguard against speculation and crop failure.

The use of modern agricultural machinery is extremely limited. Estimates indicate that an average of only about 576 short tons of such machinery (mostly pumps, tractors, plows, and spare parts) was imported yearly between 1936 and 1942.

Processing and Milling Facilities

In the majority of cases, wheat is ground into flour by means of the ancient millstone turned by water power. In recent years, however, modern flour mills have been established at Kazvin, Tabriz, Tehran, and Isfahan, with a daily output of about 16, 60, 100, and 60 tons, respectively. There are also three mills in the Province of Khurasan.

Sugar refineries exist at Karizak, Kerej, Veramin (Tehran Province), Shahi (Mazanderan Province), Shahabad (near Kermanshah), Mervdasht (near Shiraz), Miandaub (Western Azerbaijan), Shahzand (Khuzistan), Meshed, and Isfahan.

In 1941 there were about 30 cotton mills in operation, with about 800 looms and 133,000 spindles. Isfahan had 15 of these, and the rest were scattered in various parts of the country.

Important fisheries and canneries have existed on the Caspian Sea for a number of years. The output has been under Soviet-Iranian control. In 1940 a fish cannery was erected at Bandar Abbas, on the Persian Gulf.

Principal Crops

In being predominantly agricultural, Iran is no exception to the other countries of the Middle East. As previously mentioned, about 85 percent of its population is directly dependent upon agriculture or livestock raising for a living. The collection, or dissemination, of statistical information in this part of the world has, however, not been developed to the same extent as it has in much of Europe and North America and cannot be relied upon to the same extent. In compiling tables 1, 2, and 3, the figures were either taken directly from official sources or calculated from the best available data, but they must be considered as rough estimates only. The averages for two 5-year periods, 1934-38 and 1939-43, are presented with a view to making a comparison between the pre-war, normal period, and the present war situation.

Cereals

Iran may be characterized as a cereal-producing country, the principal crop being wheat, which is produced in practically every part of the country but especially

[8] 1 metric ton equals 1.1023 short tons.

TABLE 1.-*Acreage, production, trade, and indicated supply for domestic consumption of specified products in Iran, average 1934-38 and 1939-43*

ITEM	ACREAGE		PRODUCTION		NET IMPORTS + OR NET EXPORTS -		INDICATED SUPPLY FOR DOMESTIC CONSUMPTION	
	1934-38	1939-43	1934-38	1939-43	1934-38	1939-43	1934-38	1939-43
	1,000 acres	*1,000 acres*	*1,000 sh. tons*	*1,000 sh. tons*	*1,000 sh. tons*	*1,000 sh. tons*	*1,000 sh. tons*	*1,000 sh. tons*
Wheat	4,255	3,089	2,227.4	1,388.9	-24.8	+28.8	2,202.6	1,417.7
Barley	1,577	1,339	874.3	606.3	-13.9	-	860.4	606.3
Rice	541	625	466.6	374.8	-48.4	-25.8	418.2	349.0
Total cereals	6,373	5,053	3,568.3	2,370.0	-87.1	+3.0	3,481.2	2,373.0
Pulse	247	247	165.3	165.3	-0.4	-	164.9	165.3
Vegetables[1]	-	-	-	-	-	-	-	-
Grapes	-	-	581.7	551.1	-	-	581.7	551.1
Raisins	-	-	44.1	34.2	-16.2	-19.9	27.9	14.3
Dates	-	-	131.8	132.3	-30.1	-16.5	101.7	115.8
Oranges	-	-	23.8	22.0	-	-	23.8	22.0
Fruit, dried	-	-	30.6	30.9	-5.0	-5.3	25.6	25.6
Fruit, other[1]	-	-	-	-	-	-	-	-
Total fruit	-	-	812.0	770.5	-51.3	-41.7	760.7	728.8
Almonds	-	-	14.9	12.1	-9.1	-9.0	5.8	3.1
Nuts, other	-	-	5.5	5.5	-1.4	-2.5	4.1	3.0
Total nuts[2]	-	-	20.4	17.6	-10.5	-11.5	9.9	6.1
Oil, cottonseed	-	-	7.7	5.5	-	-	7.7	5.5
Oil, other	-	-	3.0	3.3	-	-	3.0	3.3
Total oil	-	-	10.7	8.8	-	-	10.7	8.8
Beet sugar	32	69	16.6	30.0	+75.5	+70.7	92.1	100.7
Coffee	-	-	-	-	+0.2	+0.2	0.2	0.2
Tea	7	10	0.7	1.0	+7.5	+6.7	8.2	7.7
Cottonseed	390	489	82.0	69.8	-0.6	-4.1	81.4	65.7
Cotton, ginned	-	-	36.7	41.9	-22.3	-12.3	14.4	29.6
Opium	-	82	0.9	0.7	-0.6	-0.6	0.3	0.1
Silk	-	-	0.7	0.7	-0.3	-0.3	0.4	0.4
Gum	-	-	7.2	7.1	-5.4	-5.7	1.8	1.4
Tobacco	32	30	18.7	14.0	-0.3	-0.4	18.4	13.6

[1] No figures available.

[2] Unshelled basis.

Compiled by the Office of Foreign Agricultural Relations from official sources, but figures in some cases are little more than rough approximations.

in the Provinces[9] of Khurasan in the northeast, Azerbaijan in the northwest, Kermanshah and Khuzistan in the west, and Fars in the south. During the pre-war period (see table 1), there was a net export of wheat, whereas during the period 1939-43 imports became necessary. This change can be explained in general by the various disruptive factors of the war. Available figures indicate a substantial decrease in acreage and production, but no apparent reason exists for such a decrease. The discrepancy is more likely the result of a difference in the accuracy of making and reporting estimates of the produce. The belief in some Iranian official quarters is that the figures reported for 1934-38, for one reason or another, were exaggerated.

Barley is grown in the same localities that produce wheat. In a way the two crops are supplementary, since barley is used largely for feed.

[9] Being more meaningful for the purpose of this study, the old term "province" is used, although the country has been divided recently into 10 new divisions (Ostans) and 49 subdivisions (Shahrestans).

Rice ranks next in importance to wheat. Practically all of it is grown in the Caspian littoral, where the climate is suitable and water abundant. It is sown by broadcasting or transplanting. The grain is dried in the sun or over slow fire. Husking is done by pounding the grain in stone receptacles. Usually rice is grown on the same land for 2 or 3 years, followed by a similar period of fallow.

Other less important cereals grown in Iran are maize, millet, and grain sorghum.

Pulse

Lentils and beans are the important pulses produced. They are grown in various parts of the country, especially in the Provinces of Isfahan, Azerbaijan, Kerman, Kermanshah, and Tehran.

Vegetables

Although no production figures are available, vegetables are known to be fairly abundant, especially in the suburbs of urban centers. Cabbage, onions, carrots, eggplants, cucumbers, lettuce, tomatoes, and others are produced. Potatoes were introduced during the early part of the last century but did not make much headway. Recently, under exigencies of the war, their production has been encouraged.

Fruits

Iran is well known for the abundance and excellence of its fruits. Dates, raisins, and other dried fruits are important items of export, but statistical data covering total fruit production are not available. No figures are reported for the production of such fruits as pomegranates, sweet limes, melons, figs, quinces, plums, pears, and apples. The main fruit-growing centers are Khuzistan (dates), Azerbaijan, Malayer, and Qazvin (raisins), Khurasan (deciduous fruit), Gilan and Mazanderan (citrus, olives, and other fruits).

In a decree of April 26, 1942, the Government classified products into three categories: (1) Nonexportable, (2) exportable against an equal value of imports, and (3) exportable. Dried fruits were put in the second category. Later, by a decree of January 25, 1943, raisins and dates were transferred to the nonexportable category. Other dried fruits were retained in the second category, with the condition that an equal value of foodstuffs had to be imported.

Nuts

The Iranian almonds are famous and constitute another important export item. Other nuts are pistachios, chestnuts, and walnuts. By the decree of January 26, 1943, mentioned above, almonds were placed in the second category of exports – exportable against the importation of an equal value of foodstuffs. Almonds are grown chiefly in Azerbaijan, Fars, Khurasan, and Kashan; chestnuts and walnuts in the Caspian region; and pistachios in Kerman, Yezd, Azerbaijan, and Qazvin.

Vegetable Oil

The production of vegetable oil is relatively limited. It is extracted mainly from cottonseed. Other sources are olives, sesame, linseed, and castor beans. The total production probably is larger than shown (see table 1).

Sugar and Tea

For a long time these products have constituted the two most important items of agricultural imports. In recent years the Government has embarked upon a policy of

making the country self-sufficient with respect to both products. Sugar production was increased from 8,818 short tons in 1935 to about 38,580 in 1941. Tea production has also been increased almost at the same rate as that of sugar. Estimates indicate that an area of about 25,000 acres must be put under tea in order to supply the needs of the country. The possibility of such expansion is doubtful since the region where the tea plant can be grown is limited to the higher levels of the Caspian littoral. The climatic conditions of the plateau are not suitable for this crop.

The sugar beet is the source of practically all the sugar produced in Iran. It is principally a plateau crop, grown under irrigation. The Provinces of Khurasan, Tehran, Isfahan, Azerbaijan, Kermanshah, Khuzistan, and Fars are the principal producing areas. In 1934 production amounted to 66,138 short tons, whereas in 1939-43 it averaged 192,900 tons. The area planted to this crop increased from about 15,000 acres in 1934 to about 75,000 in 1942.

Previous to the recent development of the sugar-beet crop, especially a few centuries back, sugarcane was cultivated extensively in the Caspian littoral and in the western Province of Khuzistan. In 1940 a project for the revival of this crop as a source of sugar was begun. A potential center of considerable production is the Karun River Valley in the above-mentioned Province.

Cotton

For several centuries cotton has been cultivated in Iran. It can be grown almost anywhere below the 5,000-foot level of elevation, when irrigation is possible. The Provinces of Kerman, Khurasan, Mazanderan, Tehran, Azerbaijan, Isfahan, and especially Khuzistan are the main centers of production.

The cultivation of this crop was increased from about 240,000 acres producing 71,649 short tons of raw cotton in 1935 to about 500,000 acres and 132,276 tons in 1941. In 1943, however, because of the need for food crops, the area planted to cotton was restricted to about half of normal.

Before 1942, the average annual crop of about 49,603 short tons of lint cotton was disposed of as follows: 22,046 tons exported, 16,534 utilized by mills, and 11,023 tons consumed by local weavers. In 1943, because of the war situation, exports came to a stop. Of a normal crop of cottonseed, about 16,534 tons are used for feed, 16,534 for seed, and 33,069 tons for oil.

Silk

Since ancient times the fascinating and lucrative industry of silkworm culture has flourished in Iran, introduced probably from China. Reports state that in the early eighteenth century production of silk reached the very high figure of about 13,000,000 pounds. In the second half of the nineteenth century the industry was practically ruined by disease. It picked up to some extent upon the importation of foreign eggs, to be ruined again in the aftermath of World War I. At present the normal yearly crop is about 1,500,000 pounds, produced mainly in Gilan Province.

Opium

In the control of opium production Iran faces a tough problem for which no satisfactory solution has yet been found. It involves a complex of moral, economic, and national health factors. The Government has tried to curtail opium production by restricting it in certain provinces and prohibiting it in others. Also it put the trade in opium under control. So far, these efforts have met with little success. A

TABLE 2.-*Livestock numbers and production and trade in livestock products in Iran, average 1934-38 and 1939-43*

ITEM	NUMBER		PRODUCTION		NET IMPORTS + OR NET EXPORTS -		INDICATED SUPPLY FOR DOMESTIC CONSUMPTION	
	1934-38	1939-43	1934-38	1939-43	1934-38	1939-43	1934-38	1939-43
	1,000 head	*1,000 head*	*1,000 sh. tons*	*1,000 sh. tons*	*1,000 sh. tons*	*1,000 sh. tons*	*1,000 sh. tons*	*1,000 sh. tons*
Cattle	2,569	2,500	-	-	-	-	-	-
Sheep	14,655	14,000	-	-	-	-	-	-
Goats	6,810	7,000	-	-	-	-	-	-
Horses	328	325	-	-	-	-	-	-
Mules	50	50	-	-	-	-	-	-
Asses	1,138	1,145	-	-	-	-	-	-
Camels	67	67	-	-	-	-	-	-
Poultry[1]	-	-	-	-	-	-	-	-
Beef and veal	-	-	55.1	55.1	-	-	55.1	55.1
Mutton and lamb	-	-	97.0	97.0	-	-	97.0	97.0
Goat and kid	-	-	45.2	45.2	-	-	45.2	45.2
Total meat	-	-	197.3	197.3	-	-	197.3	197.3
Wool	-	-	17.6	17.6	-7.7	-7.7	9.9	9.9
Skins	-	-	3.3	3.3	-2.3	-2.5	1.0	0.8
Lamb fur	-	-	(1)	(1)	-1.1	-0.8	(1)	(1)
Eggs	-	-	44.1	44.1	-	-	44.1	44.1
Milk	-	-	1,234.6	1,234.6	-	-	1,234.6	1,234.6

[1] No figures available.

Compiled by the Office of Foreign Agricultural Relations from official sources, but figures in some cases are little more than rough approximations.

large number of people are addicted to this narcotic, and illegal trade in it is still prospering. The economic factors involved are that the product is extremely lucrative, the poppy from which it is extracted grows in nearly every part of the plateau, and it needs little care. An adequate solution of the problem seems to depend in part at least upon the introduction of an effective substitute crop. The principal centers of production are Khurasan, Isfahan, Kermanshah, Luristan, and Fars.

Livestock and Products

The significance of sheep in the economic life of Iran cannot be overestimated. Since time immemorial the tribes of the plateau have tended their extensive flocks and, following the seasons, have migrated with them between the lowlands and the mountain slopes. They have lived almost entirely upon the products of the flocks. At present there are between 14 and 16 million sheep (mostly of the fat-tailed type), which are raised by nomadic or partly settled tribes and by village dwellers. Aside from being the main source of dairy products and meat for local consumption, sheep produce valuable items of exports in the form of wool, lamb furs, skins, and casings. The best qualities of wool are produced in Khurasan and Azerbaijan. Other centers are Fars, Khuzistan, Kermanshah, Tehran, and Hamadan.

Similar to sheep in their use, but on a smaller scale, are goats, which produce milk, hair, meat, casings, and skins.

In general the cattle of Iran are of an inferior grade as to size and milk production. Of an approximate total of 2,500,000 head, about one-half are oxen. These are used as draft animals, mainly in plowing.

Asses are the pack animals par excellence. They are patient, hardy, and sure-footed creatures, perfectly adapted to the rugged terrain. Camels supplement asses

for the same purpose in desert areas. With the rapid development of mechanized transportation under the impetus of the war, these two ancient animals of the Iranian plateau may soon come to the end of their road.

FOOD CONSUMPTION

In estimating the per capita consumption of various food crops (see table 3) only rough approximations could be made. These serve, however, to give a general picture of the situation. The pre-war period 1934-38 was chosen for consideration, because it represents the normal way of living more accurately than the recent war period.

As in the case of the other countries of the Middle East, Iran depends mainly upon cereals for food. This puts the country among the heavy consumers of this item in the world. The bulk of cereal consumption is in the form of wheat bread - which is the main source of caloric value. Rice is consumed by the masses of the people in the Caspian littoral, where it is grown, and by the upper classes in other parts of the country. Until recently consumption of potatoes has been negligible. As a result of present war measures, this item may play a more important role in the future. Consumption of pulse may be considered normal, as compared with that of neighboring countries, except Egypt where it is about two and a half times as high, No statistics are available for vegetables, although they are known to figure to a certain extent in the people's diet. A rough guess is that the annual per capita consumption is less than that of Syria and Lebanon, or about 110 pounds. The figure for total fruit is much less than the amount actually consumed. As has been mentioned above, there are no available production estimates for several varieties that are known to be produced and consumed in considerable quantities. About twice the amount shown in the table would perhaps be a fairer approximation. For similar reasons, the figure for vegetable oil seems to be lower than the total actually consumed. At the same time, one should remember that the consumption of animal fat is fair, especially that from fat-tailed sheep, which is included with meat. In the absence of estimates for poultry meat, a rough guess of about 1.1 pounds,[10] which is the estimate for Egypt, is suggested. Similarly, there are no reliable statistics for fish. A considerable catch is known, however, to be obtained from the Persian Gulf and the Caspian Sea, part of which is used for exports and part for local consumption.

In general, the indications are that the Iranian diet is adequate with respect to calorie-producing items, fairly adequate with respect to vegetables and fruits, and deficient with respect to meat and dairy products. This general picture is, however, in reality distorted by certain factors that are not revealed by per capita averages. One of these is the high concentration of food consumption within certain minority classes. Another factor is the amount of food, which is normally of the best quality, consumed by foreign tourists. There is also the important matter of seasonal distribution. The absence of modern facilities for storage and canning, together with the poor means of transportation, limits the consumption of perishable protective foods to the season and locality in which they are produced. Consequently, a safe assumption is that the dietary standard of the bulk of the Iranian population is significantly lower than is indicated by the figures given. The often-repeated statement is probably true that the Iranian peasants and urban masses live mainly on bread, plus a little of something else in season or on special occasions.

[10] Converted from kilograms; 1 kilogram equals 2.2046 pounds.

TABLE 3.-*Food consumption in Iran, pre-war average, 1934-38*[1]

ITEM	INDICATED SUPPLY FOR DOMESTIC CONSUMPTION	ESTIMATED PORTION USED FOR FOOD[2]	APPARENT PER CAPITA CONSUMPTION AS FOOD		ESTIMATED LOCAL RATE OF EXTRACTION
			GROSS	NET	
	1,000 short tons	*1,000 short tons*	*Pounds*	*Pounds*	*Percent*
Wheat	2,202.6	1,917.9	255.7	204.6	80
Barley	860.4	158.0	21.1	15.8	75
Rice	418.2	394.1	52.5	35.2	67
Total cereals	3,481.2	2,470.0	329.3	[3]255.6	-
Pulse	164.9	148.4	19.8	19.8	100
Vegetables[4]	-	-	-	-	-
Grapes	581.7	581.7	77.6	69.8	90
Raisins	27.9	27.9	3.7	3.7	100
Dates	101.7	101.7	13.7	10.3	75
Oranges	23.8	23.8	3.1	2.5	80
Fruit, dried	25.6	25.6	3.3	2.5	75
Fruit, other[4]	-	-	-	-	-
Total fruit	760.7	760.7	101.4	88.8	-
Almonds	5.8	5.8	0.9	0.4	50
Nuts, other	4.1	4.1	0.4	0.2	50
Total nuts	9.9	9.9	1.3	0.6	-
Oil, cottonseed	7.7	7.7	1.1	1.1	100
Oil, other	3.0	3.0	0.4	0.4	100
Total oil	10.7	10.7	1.5	1.5	-
Beef and veal	55.1	55.1	7.3	6.6	90
Mutton and lamb	97.0	97.0	13.0	11.7	90
Goat and kid	45.2	45.2	5.9	5.3	90
Total meat[5]	197.3	197.3	26.2	23.6	-
Poultry[4]	-	-	-	-	-
Eggs	44.1	44.1	5.9	5.3	90
Milk[6]	1,234.6	1,234.6	164.7	164.7	100
Fish[4]	-	-	-	-	-
Sugar	92.1	92.1	12.3	12.3	100
Tea	8.2	8.2	1.1	1.1	100

[1] In some cases a less than 5-year average had to be used.

[2] Allowance is made for seed and for animal feed.

[3] In terms of flour.

[4] No figures available.

[5] Includes fat and offals.

[6] Includes all dairy products in terms of milk.

Compiled by the Office of Foreign Agricultural Relations from official sources, but figures in some cases are little more than rough approximations.

Population - 15,000,000.

FORESTS

The total forest area of Iran is estimated at about 50 million acres. The most extensive portion of the forest land is found on the mountain slopes extending along the northern rim of the plateau, from the upper limits of Khurasan in the northeast to the heart of Azerbaijan in the northwest. The area covered by the northern forests amounts to about 8,890,000 acres, 40 percent of which has a heavy growth, 40 percent medium, and 20 percent thin. The forests consist principally of boxwood, oak, cypress, elm, ash, beech, walnut, maple, alder, ironwood, linden,

poplar, willow, silk tree, locust, persimmon, sycamore, and several kinds of wild fruit trees. The yield of wood from heavily forested land is estimated at about 2,145 cubic feet per acre.

Another forest region extends from the mountains of Western Azerbaijan down to the southern reaches of the Zagros Mountains, covering about 27,900,000 acres. This consists principally of oak trees, producing about 11,124 million cubic feet of wood a year.

In the Province of Khurasan, an area of 3,200,000 acres is covered with cedar forests, which are of little economic value.

Forests of pistachio and other wild fruit trees exist mainly in the mountains of southern and eastern Iran, covering an area of about 6,900,000 acres. The main value of these forests is to supply wild stock for the grafting of grapes and almonds.

In the Persian Gulf littoral there is an area of about 1,200,000 acres, consisting of several varieties of tropical trees.

In recent years the Iranian Government has become aware of the natural treasure of the forest and of the great risk involved in unchecked and uncontrolled exploitation. Consequently, a forest law was passed by the Majlis on January 7, 1943, providing for the conservation and replenishing of forests and the control of their exploitation. The problem, however, is too complicated to be solved adequately by legislation. For many long centuries, wood and charcoal have been the main sources of fuel for cooking, heating, and other uses. Traditional practices, social and economic, have been built up with this procedure. In the plains, where no wood exists, people have been forced to burn dried manure, which is an equally destructive activity. Obviously, no effective solution will be possible, unless an adequate substitute fuel that is cheap and within the reach of various localities is provided. Oil and coal are two possibilities, at least as supplements to charcoal.

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FOOD IN GERMANY . . . . .

By J. H. Richter*

Germany's production and consumption of food thus far in this war have been maintained at satisfactory levels and far above those of 1914-18. In view, however, of the cumulative effect over the war years of basic shortages of production factors and a more drastic curtailment during the present season in the supply of nitrogen for agriculture, domestic food production in 1944 may be considerably below that of any of the preceding years. If, moreover, there were to be a severe reduction in takings from foreign sources, total German food supplies for 1944-45 would be drastically curtailed. Such an outlook may begin to affect the food situation during the next 6 months.

FOOD PRODUCTION

In contrast to the situation in 1914, Germany's food economy in 1939 was well prepared for war. Following a period of sustained expansion, agricultural production had reached a high level. Over 85 percent of the nation's food supply was produced from domestic resources, the only substantial deficit being in fats and oils. From 1937 until the outbreak of war, stocks of grains, fats, and sugar had been accumulated in considerable quantities.

One of the most important differences in Germany's food situation in 1939 compared to that of 1914 was the considerable increase in the structural stability of domestic agricultural production. In 1909-13 Germany's agriculture found its livestock sector dependent upon the importation of feed to the extent of fully 38 percent of the total output of livestock products. The drastic curtailment of imports after 1914 thus undermined the very foundations of the country's livestock economy, which in turn affected crop production to a considerable extent. This situation changed markedly in later years. At the outbreak of war in 1939 Germany's dependence on imported feed supplies was probably not more than 10 percent. As a result, livestock production in the present war has been considerably less affected than in 1914-18.

Another important factor in the maintenance of a high level of wartime farm production was the relatively large supply, up to 1943, of commercial fertilizer other than phosphates. Especially important in this connection was the availability of nitrogen, which continued much above that of any year prior to 1936-37; it was from 550,000 to 650,000 short tons per year more than in 1914-18, or 6 to 7 times the amount then consumed. This excess, even after allowance has been made for the drastic reduction in phosphates, may still be estimated as accounting for an annual crop production of over 6 million tons in terms of grain.

* Office of Foreign Agricultural Relations.

Despite substantial imports and requisitions of food from other parts of continental Europe, most of which in this war came under Germany's control, the country's own production remained the backbone of its wartime food supply. Germany thus far has succeeded in keeping within narrow limits the reduction of agricultural productivity made inevitable by shortages of labor, fertilizer, and machinery. As a result, the loss in total output was more than offset by a diversion of production from feed to food and of consumption from foodstuffs of animal origin to foodstuffs of vegetal origin. All this helped maintain a tolerably adequate food standard, although the composition of the diet has deteriorated considerably.

CONSUMPTION 1942-43 AND 1943-44[1]

Estimates have been made of food consumption by individual consumer groups of the native civilian population in Germany, 1942-43 and 1943-44, based on November data (see table 1). If allowance is made for a consumption by the adult farm population of 3,400 calories per day made up of 98 grams of protein, 88 grams of fat, and 540 grams of carbohydrate, average consumption by the civilian population of the Old Reich appears to have amounted to a possible total of 2,500 calories per person per day in 1942-43, or roughly 89 percent of the 2,800 calories (digestible basis) consumed at the retail level during 1933-37. In this calculation consumption by individual consumer groups has been weighted by their estimated proportions in the total civilian population. In worker families consumption seems to have varied from over 90 to 100 percent of the pre-war energy level, depending upon the wartime composition of the families by sex and age groups and consumer categories.

In regard to food constituents, consumption in 1942-43 by the civilian population may be estimated at from 60 to 70 grams of protein per person per day (84 to 98 percent of pre-war) of which 20 to 30 grams were animal protein (50 to 75 percent of pre-war); 53 to 55 grams of fat (52 to 54 percent of pre-war); and 375 to 420 grams of carbohydrate (98 to 109 percent of pre-war). In worker families 1942-43 consumption appears to have been from 90 to 100 percent of pre-war in protein, 60 to 70 percent in fat, and 110 to 120 percent in carbohydrate. November (1943) allowances of food expressed in calories for most civilian groups were about 2 percent smaller than during 1942-43 and 3 percent smaller in protein and carbohydrate, with little change in fat.

The "normal consumer's" food intake, that is to say, consumption by the nonprivileged city dweller in nonmanual or light manual occupation, was considerably below the civilian average. His total energy supply in 1942-43 was from 2,000 to 2,250 calories per day, with protein from 50 to 60 grams, fat 40 to 43 grams, and carbohydrate from 340 to 390 grams. At the present time the normal-consumer intake may be 3 percent smaller than that of 1942-43 in carbohydrate and calories, 5 percent smaller in protein, and 1 percent smaller in fat.

Considerable as these restrictions of consumption are, the German people thus far have continued to be much better fed than in the first World War, when the normal consumer's allowances in the comparable periods were little more than 1,600 calories per day. The supplementary rations for heavy workers were also less in the last war, and there was no extra allowance for long hours and night workers. Fat rations are still from two to three times those of 1916-18, consumption of bread, potatoes, fresh vegetables, and sugar also continues well above that in the last war, whereas there is little difference in regard to meat.

[1] For rationing data and earlier estimates, see FOREIGN AGRICULTURE, October 1941, February 1942, and May 1942, and SUMMARY, FOREIGN CROPS AND MARKETS, December 1943.

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TABLE 1.-*Estimated food rations and consumption allowances in Germany, by food constituents and calories, according to indicated consumer categories, 1942-43 and 1943-44*

ITEM	1942-43[1]						1943-44[1]					
	FOOD PER WEEK		DAILY INTAKE				FOOD PER WEEK		DAILY INTAKE			
			PROTEIN	FAT	CARBOHYDRATE	TOTAL ENERGY			PROTEIN	FAT	CARBOHYDRATE	TOTAL ENERGY
NORMAL CONSUMER:	*Ounces*	*Grams*	*Grams*	*Grams*	*Grams*	*Calories*	*Ounces*	*Grams*	*Grams*	*Grams*	*Grams*	*Calories*
Bread, flour, and cereals as flour	63.5	1,800	24.2	2.6	176.9	848	68.1	1,930	25.9	2.8	189.7	910
Sugar and jam as sugar	11.8	335	–	–	46.6	191	11.8	335	–	–	46.6	191
Potatoes[2]	141.1	4,000	7.4	0.6	100.0	446	105.9	3,000	5.6	0.4	75.0	334
Potatoes[3]	158.9	4,500	8.4	0.6	112.5	501	123.6	3,500	6.5	0.5	87.5	390
Legumes	1.8	50	1.2	–	3.3	19	1.8	50	1.2	–	3.3	19
Other vegetables	35.3	1,000	2.1	0.3	7.8	43	35.3	1,000	2.1	0.3	7.8	43
Fruits and nuts	8.8	250	0.2	0.1	4.1	18	8.8	250	0.2	0.1	4.1	18
Meats	12.4	350	9.4	7.6	–	110	8.8	250	6.7	5.5	–	78
All fats and oils	7.3	206	0.1	26.2	0.1	244	7.7	218	0.1	27.7	0.1	258
Cheese	2.2	63	1.8	1.5	0.3	22	2.2	63	1.8	1.5	0.3	22
Eggs	2.0	57	0.9	0.8	–	12	2.0	57	0.9	0.8	–	12
Fish	4.2	120	1.7	1.1	–	17	4.2	120	1.7	1.1	–	17
Whole milk	–	–	–	–	–	–	–	–	–	–	–	–
Skim milk	7.1	200	0.9	–	1.4	10	7.1	200	0.9	–	1.4	10
Total per capita[2 4]	–	–	49.9	40.8	340.5	1,980	–	–	47.1	40.2	328.3	1,912
Total per capita[5]	–	–	62.0	42.7	391.2	2,258	–	–	59.1	42.2	379.0	2,191
LONG AND NIGHT WORKER:												
Bread, flour, and cereals as flour	79.4	2,250	30.2	3.2	221.1	1,061	86.8	2,458	33.0	3.5	241.6	1,159
Sugar and jam as sugar	11.8	335	–	–	46.6	191	11.8	335	–	–	46.6	191
Potatoes[2]	141.2	4,000	7.4	0.6	100.0	446	105.9	3,000	5.6	0.4	75.0	334
Potatoes[3]	158.9	4,500	8.4	0.6	112.5	501	123.6	3,500	6.5	0.5	87.5	390
Legumes	1.8	50	1.2	–	3.3	19	1.8	50	1.2	–	3.3	19
Other vegetables	35.3	1,000	2.1	0.3	7.8	43	35.3	1,000	2.1	0.3	7.8	43
Fruits and nuts	8.8	250	0.2	0.1	4.1	18	8.8	250	0.2	0.1	4.1	18
Meats	19.4	550	14.7	12.0	–	172	15.9	450	12.0	9.8	–	141
All fats and oils	8.0	226	0.1	28.7	0.1	268	8.4	238	0.1	30.3	0.1	282
Cheese	2.2	63	1.8	1.5	0.3	22	2.2	63	1.8	1.5	0.3	22
Eggs	2.0	57	0.9	0.8	–	12	2.0	57	0.9	0.8	–	12
Fish	4.2	120	1.7	1.1	–	17	4.2	120	1.7	1.1	–	17
Whole milk	–	–	–	–	–	–	–	–	–	–	–	–
Skim milk	7.1	200	0.9	–	1.4	10	7.1	200	0.9	–	1.4	10
Total per capita[2 4]	–	–	61.2	48.3	384.7	2,279	–	–	59.5	47.8	380.2	2,248
Total per capita[5]	–	–	73.3	50.2	435.4	2,557	–	–	71.5	49.8	430.9	2,527
HEAVY WORKER:												
Bread, flour, and cereals as flour	100.6	2,850	38.3	4.1	280.1	1,343	105.2	2,980	40.0	4.2	292.9	1,405
Sugar and jam as sugar	11.8	335	–	–	46.6	191	11.8	335	–	–	46.6	191
Potatoes[2]	141.2	4,000	7.4	0.6	100.0	446	105.9	3,000	5.6	0.4	75.0	334
Potatoes[3]	158.9	4,500	8.4	0.6	112.5	501	123.6	3,500	6.5	0.5	87.5	390
Legumes	1.8	50	1.2	–	3.3	19	1.8	50	1.2	–	3.3	19
Other vegetables	35.3	1,000	2.1	0.3	7.8	43	35.3	1,000	2.1	0.3	7.8	43
Fruits and nuts	8.8	250	0.2	0.1	4.1	18	8.8	250	0.2	0.1	4.1	18
Meats	24.7	700	18.7	15.3	–	219	21.2	600	16.0	13.1	–	188
All fats and oils	10.8	306	0.2	38.9	0.1	363	11.2	318	0.2	40.4	0.1	377
Cheese	2.2	63	1.8	1.5	0.3	22	2.2	63	1.8	1.5	0.3	22
Eggs	2.0	57	0.9	0.8	–	12	2.0	57	0.9	0.8	–	12
Fish	4.2	120	1.7	1.1	–	17	4.2	120	1.7	1.1	–	17
Whole milk	–	–	–	–	–	–	–	–	–	–	–	–
Skim milk	7.1	200	0.9	–	1.4	10	7.1	200	0.9	–	1.4	10
Total per capita[2 4]	–	–	73.4	62.7	443.7	2,703	–	–	70.6	61.9	431.5	2,636
Total per capita[5]	–	–	85.5	64.6	494.4	2,981	–	–	82.6	63.9	482.2	2,915

See footnotes p. 48.

Continued –

TABLE 1.-*Estimated food rations and consumption allowances in Germany, by food constituents and calories, according to indicated consumer categories, 1942-43 and 1943-44.* Continued.

ITEM	1942-43[1]						1943-44[1]					
	FOOD PER WEEK		DAILY INTAKE				FOOD PER WEEK		DAILY INTAKE			
			PROTEIN	FAT	CARBOHYDRATE	TOTAL ENERGY			PROTEIN	FAT	CARBOHYDRATE	TOTAL ENERGY
VERY HEAVY WORKER:	*Ounces*	*Grams*	*Grams*	*Grams*	*Grams*	*Calories*	*Ounces*	*Grams*	*Grams*	*Grams*	*Grams*	*Calories*
Bread, flour, and cereals as flour	127.1	3,600	48.3	5.1	353.8	1,697	131.7	3,730	50.1	5.3	366.6	1,758
Sugar and jam as sugar	11.8	335	–	–	46.6	191	11.8	335	–	–	46.6	191
Potatoes[2]	141.2	4,000	7.4	0.6	100.0	446	105.9	3,000	5.6	0.4	75.0	334
Potatoes[3]	158.9	4,500	8.4	0.6	112.5	501	123.6	3,500	6.5	0.5	87.5	390
Legumes	1.8	50	1.2	–	3.3	19	1.8	50	1.2	–	3.3	19
Other vegetables	35.3	1,000	2.1	0.3	7.8	43	35.3	1,000	2.1	0.3	7.8	43
Fruits and nuts	8.8	250	0.2	0.1	4.1	18	8.8	250	0.2	0.1	4.1	18
Meats	33.6	950	25.4	20.8	–	297	30.0	850	22.7	18.6	–	266
All fats and oils	20.3	575	0.3	73.1	0.2	681	20.7	587	0.3	74.6	0.2	696
Cheese	2.2	63	1.8	1.5	0.3	22	2.2	63	1.8	1.5	0.3	22
Eggs	2.0	57	0.9	0.8	–	12	2.0	57	0.9	0.8	–	12
Fish	4.2	120	1.7	1.1	–	17	4.2	120	1.7	1.1	–	17
Whole milk	–	–	–	–	–	–	–	–	–	–	–	–
Skim milk	7.1	200	0.9	–	1.4	10	7.1	200	0.9	–	1.4	10
Total per capita[2 4]	–	–	90.2	103.4	517.5	3,453	–	–	87.5	102.7	505.3	3,386
Total per capita[5]	–	–	102.3	105.3	568.2	3,731	–	–	99.5	104.7	556.0	3,665
CHILDREN 0-3 YEARS:												
Bread, flour, and cereals as flour	33.6	950	12.8	1.4	93.4	448	43.4	1,230	16.5	1.8	120.9	580
Sugar and jam as sugar	13.2	375	–	–	52.3	214	13.2	375	–	–	52.3	214
Potatoes[2]	141.2	4,000	7.4	0.6	100.0	446	105.9	3,000	5.6	0.4	75.0	334
Potatoes[3]	158.9	4,500	8.4	0.6	112.5	501	123.6	3,500	6.5	0.5	87.5	390
Legumes	–	–	–	–	–	–	–	–	–	–	–	–
Other vegetables	35.3	1,000	2.1	0.3	7.8	43	35.3	1,000	2.1	0.3	7.8	43
Fruits and nuts	10.6	300	0.2	0.1	4.9	21	10.6	300	0.2	0.1	4.9	21
Meats	7.1	200	5.3	4.4	–	63	7.1	100	2.7	2.2	–	31
All fats and oils	4.4	125	0.1	15.8	–	148	4.9	138	0.1	17.5	–	164
Cheese	2.2	63	1.8	1.5	0.3	22	2.2	63	1.8	1.5	0.3	22
Eggs	2.0	57	0.9	0.8	–	12	2.0	57	0.9	0.8	–	12
Fish	4.2	120	1.7	1.1	–	17	4.2	120	1.7	1.1	–	17
Whole milk	185.3	5,250	24.0	24.0	36.0	472	185.3	5,250	24.0	24.0	36.0	472
Skim milk	–	–	–	–	–	–	–	–	–	–	–	–
Total per capita[2 4]	–	–	56.3	50.0	294.7	1,906	–	–	55.6	49.7	297.2	1,910
Total per capita[6]	–	–	60.3	51.9	332.8	2,094	–	–	59.5	50.7	335.3	2,099
CHILDREN 3-6 YEARS:												
Bread, flour, and cereals as flour	39.3	1,112	14.9	1.6	109.2	524	43.8	1,242	16.7	1.8	122.0	585
Sugar and jam as sugar	13.2	375	–	–	52.3	214	13.2	375	–	–	52.3	214
Potatoes[2]	141.2	4,000	7.4	0.6	100.0	446	105.9	3,000	5.6	0.4	75.0	334
Potatoes[3]	158.9	4,500	8.4	0.6	112.5	501	123.6	3,500	6.5	0.5	87.5	390
Legumes	–	–	–	–	–	–	–	–	–	–	–	–
Other vegetables	35.3	1,000	2.1	0.3	7.8	43	35.3	1,000	2.1	0.3	7.8	43
Fruits and nuts	10.6	300	0.2	0.1	4.9	21	10.6	300	0.2	0.1	4.9	21
Meats	7.1	200	5.3	4.4	–	63	3.5	100	2.7	2.2	–	31
All fats and oils	6.6	188	0.1	23.8	–	222	7.1	200	0.1	25.4	–	237
Cheese	2.2	63	1.8	1.5	0.3	22	2.2	63	1.8	1.5	0.3	22
Eggs	2.0	57	0.9	0.8	–	12	2.0	57	0.9	0.8	–	12
Fish	4.2	120	1.7	1.1	–	17	4.2	120	1.7	1.1	–	17
Whole milk	123.6	3,500	16.0	16.0	24.0	315	123.6	3,500	16.0	16.0	24.0	315
Skim milk	–	–	–	–	–	–	–	–	–	–	–	–
Total per capita[2 4]	–	–	50.4	50.2	298.5	1,899	–	–	47.8	49.6	286.3	1,831
Total per capita[6]	–	–	54.4	52.1	337.6	2,087	–	–	51.7	51.6	324.4	2,020

See footnotes p. 48.

Continued -

TABLE 1.-*Estimated food rations and consumption allowances in Germany, by food constituents and calories, according to indicated consumer categories, 1942-43 and 1943-44.* Continued.

ITEM	1942-43[1]						1943-44[1]					
	FOOD PER WEEK		DAILY INTAKE				FOOD PER WEEK		DAILY INTAKE			
			PROTEIN	FAT	CARBOHYDRATE	TOTAL ENERGY			PROTEIN	FAT	CARBOHYDRATE	TOTAL ENERGY
CHILDREN 6-10 YEARS:	*Ounces*	*Grams*	*Grams*	*Grams*	*Grams*	*Calories*	*Ounces*	*Grams*	*Grams*	*Grams*	*Grams*	*Calories*
Bread, flour, and cereals as flour	49.0	1,388	18.6	2.0	136.4	654	57.0	1,615	21.7	2.3	158.7	761
Sugar and jam as sugar	13.9	395	–	–	55.0	226	13.9	395	–	–	55.0	226
Potatoes[2]	141.2	4,000	7.4	0.6	100.0	446	105.9	3,000	5.6	0.4	75.0	334
Potatoes[3]	158.9	4,500	8.4	0.6	112.5	501	123.6	3,500	6.5	0.5	87.5	390
Legumes	–	–	–	–	–	–	–	–	–	–	–	–
Other vegetables	35.3	1,000	2.1	0.3	7.8	43	35.3	1,000	2.1	0.3	7.8	43
Fruits and nuts	10.6	300	0.2	0.1	4.9	21	10.6	300	0.2	0.1	4.9	21
Meats	14.1	400	10.7	8.7	–	125	10.6	300	8.0	6.5	–	94
All fats and oils	9.4	266	0.2	33.8	0.1	315	9.8	278	0.2	35.3	0.1	330
Cheese	2.2	63	1.8	1.5	0.3	22	2.2	63	1.8	1.5	0.3	22
Eggs	2.0	57	0.9	0.8	–	12	2.0	57	0.9	0.8	–	12
Fish	4.2	120	1.7	1.1	–	17	4.2	120	1.7	1.1	–	17
Whole milk	61.8	1,750	8.0	8.0	12.0	158	61.8	1,750	8.0	8.0	12.0	158
Skim milk	–	–	–	–	–	–	–	–	–	–	–	–
Total per capita[2 4]	–	–	51.6	56.9	316.5	2,039	–	–	50.2	56.3	313.8	2,018
Total per capita[7]	–	–	63.7	58.8	367.2	2,317	–	–	62.2	58.3	364.5	2,297
CHILDREN 10-14 YEARS:												
Bread, flour, and cereals as flour	72.8	2,062	27.7	2.9	202.7	972	77.4	2,192	29.4	3.1	215.4	1,033
Sugar and jam as sugar	13.9	395	–	–	55.0	226	13.9	395	–	–	55.0	226
Potatoes[2]	141.2	4,000	7.4	0.6	100.0	446	105.9	3,000	5.6	0.4	75.0	334
Potatoes[3]	158.9	4,500	8.4	0.6	112.5	501	123.6	3,500	6.5	0.5	87.5	390
Legumes	–	–	–	–	–	–	–	–	–	–	–	–
Other vegetables	35.3	1,000	2.1	0.3	7.8	43	35.3	1,000	2.1	0.3	7.8	43
Fruits and nuts	10.6	300	0.2	0.1	4.9	21	10.6	300	0.2	0.1	4.9	21
Meats	14.1	400	10.7	8.7	–	125	10.6	300	8.0	6.5	–	94
All fats and oils	9.4	266	0.2	33.8	0.1	315	9.8	278	0.2	35.3	0.1	330
Cheese	2.2	63	1.8	1.5	0.3	22	2.2	63	1.8	1.5	0.3	22
Eggs	2.0	57	0.9	0.8	–	12	2.0	57	0.9	0.8	–	12
Fish	4.2	120	1.7	1.1	–	17	4.2	120	1.7	1.1	–	17
Whole milk	61.8	1,750	8.0	8.0	12.0	158	61.8	1,750	8.0	8.0	12.0	158
Skim milk	–	–	–	–	–	–	–	–	–	–	–	–
Total per capita[2 4]	–	–	60.7	57.8	382.8	2,357	–	–	57.9	57.1	370.5	2,290
Total per capita[7]	–	–	72.8	59.7	433.5	2,635	–	–	69.9	59.1	421.2	2,569
ADOLESCENTS 14-20 YRS:												
Bread, flour, and cereals as flour	72.8	2,062	27.7	2.9	202.7	972	77.4	2,192	29.4	3.1	215.4	1,033
Sugar and jam as sugar	11.6	330	–	–	46.0	188	11.6	330	–	–	46.0	188
Potatoes[2]	141.2	4,000	7.4	0.6	100.0	446	105.9	3,000	5.6	0.4	75.0	334
Potatoes[3]	158.9	4,500	8.4	0.6	112.5	501	123.6	3,500	6.5	0.5	87.5	390
Legumes	–	–	–	–	–	–	–	–	–	–	–	–
Other vegetables	35.3	1,000	2.1	0.3	7.8	43	35.3	1,000	2.1	0.3	7.8	43
Fruits and nuts	10.6	300	0.2	0.1	4.9	21	10.6	300	0.2	0.1	4.9	21
Meats	14.1	400	10.7	8.7	–	125	10.6	300	8.0	6.5	–	94
All fats and oils	9.4	265	0.2	33.8	0.1	315	9.8	278	0.2	35.3	0.1	330
Cheese	2.2	63	1.8	1.5	0.3	22	2.2	63	1.8	1.5	0.3	22
Eggs	2.0	57	0.9	0.8	–	12	2.0	57	0.9	0.8	–	12
Fish	4.2	120	1.7	1.1	–	17	4.2	120	1.7	1.1	–	17
Whole milk	–	–	–	–	–	–	–	–	–	–	–	–
Skim milk	7.1	200	0.9	–	1.4	10	7.1	200	0.9	–	1.4	10
Total per capita[2 4]	–	–	53.6	49.8	363.2	2,171	–	–	50.8	49.1	350.9	2,104
Total per capita[5]	–	–	65.7	51.7	413.9	2,449	–	–	62.8	51.1	401.6	2,383

See footnotes p. 48.

Continued -

Compiled by the Office of Foreign Agricultural Relations from official rations, see SUMMARY, FOREIGN CROPS AND MARKETS, December 1943, and estimates made by the Office of direct household allowances of nonrationed foodstuffs. The figures should not be taken to represent actual consumption by indicated consumer category but rather as part of family and total national consumption. Weekly allowances are expressed in grams as well as in ounces so as to be strictly comparable with information on official rations and estimates from other sources. 1 gram = 0.0353 ounce.

[1] Based on November data.

[2] Assuming potato ration at 4,000 grams per week, 1942-43; 3,000 grams per week, 1943-44.

[3] Assuming potato ration at 4,500 grams per week, 1942-43; 3,500 grams per week, 1943-44.

[4] Minima, excluding some irregular allowances and sugar other than household ration and in marmalade.

[5] Possible totals estimated on b[illegible] assuming higher figure for potato ration; plus an assumed additional allowance of sugar of 5.5 kilograms (12 pounds) per head per year in bakery goods, sweets, fruit juices, artificial honey, ice, etc.; plus possible additional consumption of vegetables of 22 kilograms (48 [illegible]), fish of 6 kilograms (13 pounds), and skim milk (fresh and in other food) of about 94 kilograms (207 pounds); plus extra flour allowance for southern Germany; and estimated average holiday allowances.

[6] Possible totals estimated on basis of minima, assuming higher figure for potato ration; plus some additional allowance of sugar in bakery goods, sweets, fruit juices, ice, etc.; plus possible additional allowance of vegetables of 22 kilograms (48 pounds), fish of 6 kilograms (13 pounds); plus extra flour allowance for southern Germany; and estimated average holiday allowances.

[7] Possible totals estimated on basis of minima, assuming higher figure for potato ration; plus an assumed additional allowance of sugar of 5.5 kilograms (12 pounds) per head per year in bakery goods, sweets, fruit juices, ice, etc.; plus possible additional consumption of vegetables of 22 kilograms (48 pounds), fish of 6 kilograms (13 pounds), and skim milk (fresh and in other food) of about 94 kilograms (207 pounds); plus extra flour allowance for southern Germany; and estimated average holiday allowances.

OUTLOOK FOR 1944-45

Better-than-normal sowing and growing conditions for the 1943 harvest of a number of important crops partly offset the adverse influence of the basic shortages of means of production. This situation need not necessarily repeat itself. Unless weather conditions are unusually favorable, the inexorable operation of the wartime shortages, especially further and more drastic restriction in nitrogen allowances, and the impact of military operations upon production and transport may reduce agricultural output in 1944 to a level below that of any of the preceding war years.

Total food supplies available to Germany in 1942-43 may be estimated at an average of 2,650 calories per capita per day, retail level, for the native civilians in the Old Reich, all German armed forces, and foreign workers and prisoners of war in Germany. About 12 percent of this supply appears to have been imported or requisitioned from foreign sources so that domestic production may have yielded 2,330 calories per head per day. For 1943-44 domestic output and total supplies available are indicated to be somewhat below those of 1942-43. If 1944-45 domestic production for food were to be tentatively estimated at from 8 to 10 percent below that of 1943-44, per capita production would be reduced to under 2,100 calories. Assuming that the farm population (20 percent) would retain 3,200 calories per head, domestic supplies for food left for the remaining population (native civilians, foreign industrial workers, prisoners of war, and German armed forces), if evenly distributed, would amount to about 1,800 calories per person per day. If there were to be no takings from foreign sources, total food supplies for the nonfarm population would thus be brought down to very low levels.

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